

Claims

- [c1] 1. A self-administrable and self-locating neuro-electric-therapy headset for automatically applying tissue interface circuits for delivering treatment signals to a pre-selected contact area in the conch of each ear of a human subject, comprising:
- an electronics housing carrying a waveform source device having an impedance detecting function;
 - right and left earpiece housings each connected to said electronics housing and carried in suitable positions for application, respectively, to the right and left ears of a human subject;
 - said right and left earpiece housings further comprising a right and a left elongated protrusion, each extending to a respective free end wall, respectively from said right and left earpiece housings, and each carrying a tissue interface circuit on said free end wall, wherein said tissue interface circuits are in communication with said waveform source device for communicating impedance and receiving treatment signals, and said elongated protrusions are suitably arranged for applying the respective tissue interface circuits against the conch of a human ear when the headset is applied to a human subject, over a

preselected contact area juxtaposed to the lower edge of the ear canal opening and extending rearward there from in the conch of the ear;

wherein said tissue interface circuit comprises an array of electrodes carried in association with said free end wall of each earpiece housing, sized to typically contact at least about one-quarter the height of the conch of a human ear, and arranged to achieve electrical communication with said preselected contact areas in the conch of the right and left ears of a human subject when said respective protrusions are inserted therein.

[c2] 2. The neuro-electric-therapy headset of claim 1, further comprising:

an audio source carried by said earpiece housings in juxtaposition to said tissue interface circuit, delivering audible signals responsive to impedance of said preselected contact area to the ear of said human subject during delivery of treatment signals.

[c3] 3. The neuro-electric-therapy headset of Claim 1, wherein said array of electrodes comprises four electrodes arranged approximately as quadrants of a circle.

[c4] 4. The neuro-electric-therapy headset of Claim 1, wherein:
said electrodes occupy substantially the entire area of

said free end wall of each earpiece housing protrusion.

[c5] 5. The neuro-electric-therapy headset of Claim 1, further comprising:
right and left bow arms, each connected to said electronics housing and respectively carrying said right and left earpiece housings in positions placing said protrusions at a downward angle when applied to a human subject, suitable for simultaneously contacting said pre-selected contact areas in the conch of the respective right and left ears of the human subject.

[c6] 6. The neuro-electric-therapy headset of Claim 1, wherein:
said headset has front and rear faces coordinated to the front and rear of a human subject; and
further comprising right and left bow arms each connected to said electronics housing and respectively carrying said right and left earpiece housings in pivotable association such that the earpiece housings are pivotable with respect to the bow arms over a limited pivot range, from a neutral position wherein the earpieces face each other to a rearward angled position with respect to said rear face of the headset, whereby the earpiece housings are readily positioned for simultaneously inserting the respective right and left earpiece housings into the conch of the respective right and left ears of a human

subject.

- [c7] 7. The neuro-electric-therapy headset of Claim 6,
wherein:
said pivot range is no more than thirty degrees rearward
from said neutral position.
- [c8] 8. The neuro-electric-therapy headset of Claim 2,
wherein:
waveform source device is adapted to communicate se-
lected waveforms to right and left tissue interface cir-
cuits while simultaneously measuring impedance at the
right and left tissue interface circuits and generating a
responsive audio signal through said audio source de-
vice.
- [c9] 9. The neuro-electric-therapy headset of Claim 8,
wherein:
said waveform source device delivers waveform signals
suitable for trans-cranial treatment between an electrode
associated with a first one of said right and left tissue
interface circuits and an electrode associated with the
second one of said right and left tissue interface circuits.
- [c10] 10. The neuro-electric-therapy headset of Claim 8,
wherein:
said waveform source device delivers waveform signals

between at least two electrodes of said array of electrodes associated with a first one of said right and left tissue interface circuits.

[c11] 11. The neuro-electric-therapy headset of Claim 10, wherein:

said waveform source device simultaneously delivers waveform signals between at least two electrodes of said array of electrodes associated with a second one of said right and left tissue interface circuits.

[c12] 12. A method of treating a human subject in need of such treatment for one or more disorders selected from chronic headache, migraine headache, hormonally induced migraine (PMS), narcotics withdrawal symptoms, smoking withdrawal symptoms, or any combination thereof, comprising:

providing a self-contained, portable headset carrying a selectively activated waveform source device with simultaneous impedance measuring means, carrying right and left tissue interface circuits responsive to said source device, and carrying an audio output means responsive to said impedance measuring means, wherein each of said right and left tissue interface circuits is configured with an ear-entering portion comprising an array of electrodes suitably sized and shaped for contacting the conch of a human ear at a preselected contact area near

the lower edge of the ear canal opening and extending rearwardly there from;
applying said right and left tissue interface circuits respectively to right and left ears of a human subject, in a position such that said tissue interface circuit is in electrical communication with said preselected contact area;
activating said source device to provide waveform signals effective for treatment of said one or more disorders to both of said tissue interface circuits while simultaneously measuring impedance at the tissue interface circuits;
delivering effective waveform treatment over an effective time period for treating said condition to said preselected contact area in the conch of each ear of the human subject in need thereof, while simultaneously generating and delivering an audio output signal responsive to measured impedance at the tissue interface circuits for enabling the human subject to adjust the position of the headset for electrical communication with said preselected contact area.

- [c13] 13. The method of treatment according to claim 12, wherein each said array of electrodes comprises four electrodes arranged approximately as quadrants of a circle.

[c14] 14. The method of treatment according to claim 13, wherein:
a first two electrodes of each said array are positive electrodes receiving positive waveform signals from said source device; and
a second two electrodes of each said array are negative electrodes;
whereby the source device delivers both ipsilateral and bilateral treatment.

[c15] 15. The method of treatment according to claim 12, wherein said source device is cyclic in operation and provides treating frequencies in each cycle over a spectrum extending between two and two thousand hertz.